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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,901	01/14/2002	Adam Divelbiss	VRex-0035USAAON00	1384
	7590 10/17/2003		EXAMINER CHANG, AUDREY Y	
			ART UNIT 2872	PAPER NUMBER

DATE MAILED: 10/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/045,901

Applicant(s)

DIVELBISS ET AL.

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of invention group II (claims 1-9) in Paper No. 7 is acknowledged.
2. The **cancellation** of non-elected claims 10-22 by the applicant in paper number 7 is acknowledged.
3. Claims 1-9 remain pending in this application.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph**, as containing subject matter which was not described in the specification in such a way as to **enable** one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites a 3D stereoscopic projection system that includes **only** a digital micro-mirror display is rejected under **35 USC 112, first paragraph**, as **single means claim**. A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every

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conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor. (Please see MPEP 2164.08(a)).

The specification **also fails** to teach how could a 3D stereoscopic projection system be capable of projecting 3D image by simply having a digital micro-mirror display.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 1-9 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.**

The claim(s) are **narrative** in form and **replete** with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

The phrase "may or may not be independent of any clock or index signal internal to said 3D stereoscopic projection system" recited in claim 2 is indefinite since there is no any clock or index signal being claimed in the system. The term "may" also is indefinite.

The phrase "synchronized to a color wheel index signal for convenience" recited in claim 3 is confusing and indefinite since there is no "color wheel" being defined in the system. It is also not clear what is considered to be "convenience".

The phrase "the input image data rate" recited in claim 4 is confusing since there is no antecedent basis from its based claim.

The phrase "said spatio-temporal stereoscopic image multiplexing method" recited in claims 5-7 are confusing and indefinite since there is no antecedent basis from their based claim.

Claim 6 is *completely confusing* since it is not clear what is the relationships between steps (a), (b) and (c). The scope of the claim is therefore unclear and indefinite.

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The phrase “in one of several formats” recited in claim 6 is confusing. The alternative expression in term of “Markush group” could be used. The applicant is respectfully directed to MPEP 2173.05(h) for further information.

The phrase “said time-sequential format” recited in claims 8 and 9 is confusing and indefinite since it lacks proper antecedent basis from their respective based claim.

***The claims as stand now contain numerous errors, confusions and indefiniteness. It is applicant’s responsibility to clarify ALL of the discrepancies in the claims to make them in comply with the requirements of 35 USC 112, first and second paragraphs.***

#### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1-2, and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Sato et al (PN. 5,585,960).**

Sato et al teach an apparatus to display *stereoscopic image* wherein a *digital micro-mirror image display device* (12, Figures 3 and 4) is used to display left and right perspective images in a flicker free fashion, an implicitly requirement for creating stereoscopic illusion, in a *time sequential and spatial sequential manner*, (please see Figure 24). Sato et al teaches the switching of the micro mirrors to display left and right perspective image can be at a set rate, (as disclosed in column 11), to be in flicker free fashion which is therefore independent of the input rate of the image data. With regard to claim 2, the switching may or may not be independent of any clock, in the broadest interpretation. With regard to claims 4 and 5, Sato et al teach that the left and right perspective image are in time and spatial sequential

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or multiplexed fashion since the left eye and right eye perspective images are produced at different time sequence and at different spatial location. The image is also in column-multiplexed format, (please see Figure 24).

**This reference has therefore anticipated the claims.**

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Sato et al.**

The apparatus for displaying stereoscopic image taught by Sato et al as described for claim 1 above has met all the limitations of the claim. This reference however does not teach explicitly that the switching of the left and right perspective image is in synchronization with a color wheel signal. However such feature is extremely well known in the art for making the color-coding of the image properly corresponding to the image displayed. Such modification would therefore have been obvious to one skilled in the art.

12. **Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al in view of the patent issued to Lazzaro et al (PN. 6,456,432).**

The apparatus for displaying stereoscopic image taught by Sato et al as described for claim 1 above has met all the limitations of the claims. Sato et al teach that the left and right perspective image is

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displayed in column-multiplexed format and in time sequential manner however it does not teach explicitly about the *data conversion methods* as claimed in the claims. *Claim 6 is extremely confusing and it is not clear what kind of data conversion is really claimed.* It can only be examined in the broadest sense. **Lazzaro et al** in the same field of endeavor teaches a stereoscopic image viewing system wherein a data conversion method is used to display the time multiplexed image stream by converting the *spatially interlaced image data* into *time multiplexed image streams*, (please see column 11, and Figure 3). It would then have been obvious to one skilled in the art to apply the teachings of Lazzaro et al to actually carry out the conversion of data into desired time multiplexed format for displaying it.

**13. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Sato et al in view of Lazzaro et al and Martinez et al (PN. 5,226,114).**

The apparatus for displaying stereoscopic image taught by Sato et al as described for claim 1 above has met all the limitations of the claims. This reference however does not teach explicitly that a column blanking method and column doubling method is used in the claimed conversion method. **Lazzaro et al** in the same field of endeavor teaches a stereoscopic image viewing system wherein a data conversion method is used to display the time multiplexed image stream by converting the spatially interlaced image data into time multiplexed image streams, (please see column 11, and Figure 3). It would then have been obvious to one skilled in the art to apply the teachings of Lazzaro et al to actually carry out the conversion of data to desired time multiplexed format for displaying it. These references however do not teach about the column blanking or column doubling method. **Martinez et al** in the same field of endeavor teaches that it is well known in the art to use *column-doubling method* in displaying the image to improve image resolution, (please see column 1). It would then have been obvious to one skilled in the art to modify the display apparatus for the benefit of improving the image resolution. Similarly, it would have been obvious to one skilled in the art to modify the display apparatus of Sato et

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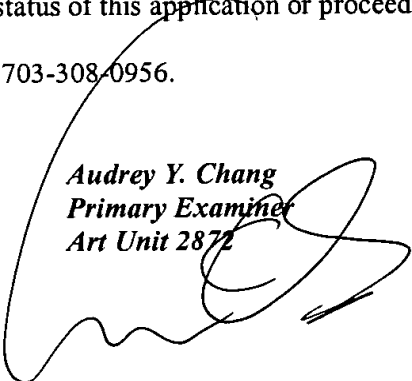
al to use column-blanking method to improve the resolution and quality of image display for such method is also well known in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Audrey Y. Chang*  
*Primary Examiner*  
*Art Unit 2872*



A. Chang, Ph.D.